

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A photosensitive printing element for preparing flexographic printing plates comprising at least the following layers in the order of:

- (a) a support,
- (b) a photopolymerizable layer comprising an elastomeric composition sensitive to non-infrared actinic radiation, said layer being soluble, swellable or dispersible in a liquid developer prior to exposure to said non-infrared actinic radiation,
- (c) at least one layer comprising an infrared radiation sensitive thermographic material which provides increased image density at the wavelengths in the electromagnetic region of said non-infrared actinic radiation ~~sensitivity~~ upon exposure to infrared ~~laser~~ radiation sufficient to prevent polymerization of ~~the~~ said layer (b) during ~~the U.V. exposure to said non-infrared actinic radiation,~~ and ~~the~~ said at least one layer changes permeability to oxygen gas upon exposure to infrared radiation. ~~or changes permeability upon exposure to radiation.~~

Claim 2 (currently amended). The photosensitive printing element of claim 1 wherein ~~the~~ said at least one layer changes permeability to oxygen upon exposure to infrared radiation and ~~the at least one layer~~ said layer (c) comprises a thermographic layer comprising a binder, a light-insensitive reducible silver source, and a reducing agent for silver ion.

Claim 3 (currently amended): The photosensitive element of claim 2 wherein ~~the at least one layer changes permeability to oxygen upon exposure to infrared radiation~~ and said (c) at least ~~one~~ layer (c) provides an image density of at least 3.0 when exposed to infrared radiation between 750 and 850 nm at a fluence of 1.0 Joules/cm² for less than 1 minute.

Claim 4 (currently amended): The photosensitive element of claim 1 wherein ~~the at least one layer changes permeability to oxygen upon exposure to infrared radiation and~~ said layer (c) comprises a thermographic layer comprising a binder, a light-insensitive reducible silver source comprising a silver salt of an organic acid, and a reducing agent for silver ion.

Claim 5 (currently amended): The photosensitive element of claim 2 wherein ~~the at least one layer changes permeability to oxygen upon exposure to infrared radiation and layer (c) comprises a thermographic layer comprising a binder, a~~ said light-insensitive reducible silver source ~~comprising~~ comprises a silver salt of an organic acid, ~~and a reducing agent for silver ion.~~

Claim 6 (previously presented): The photosensitive element of claim 5 wherein said reducible silver source comprises a silver salt of a fatty acid.

Claim 7 (previously presented): A flexographic precursor comprising

- a. a support,
- b. an ultraviolet photopolymerizable layer coated upon the support and
- c. a thermally imageable layer coated upon said ultraviolet polymerizable layer, said thermally imageable photomask layer having a gas permeability that can be changed by an imaging process.

Claim 8 (previously presented): The flexographic precursor of claim 7 wherein the thermally imageable layer coated upon said ultraviolet polymerizable layer is a thermally imageable photomask layer having a permeability to gas that changes when imaged by thermal energy.

Claim 9 (previously presented): The flexographic precursor of claim 7 wherein the gas permeability can be changed by an infrared imaging process.

Claim 10 (previously presented): The flexographic precursor of claim 7 wherein the gas permeability can be changed by an illumination imaging process.

Claim 11 (previously presented): The flexographic precursor of claim 10 wherein the illumination is thermally imaging illumination.

Claim 12 (previously presented): The flexographic precursor of claim 7 wherein the thermally imageable photomask layer comprises more than one layer.

Claim 13 (previously presented): A method for making a flexographic printing plate, said method comprising

- a. providing a support, the support having coated thereon an ultraviolet photopolymerizable layer and a thermally imageable photomask layer on top of said ultraviolet photopolymerizable layer, the thermally imageable photomask layer having an oxygen permeability that is altered by an imaging process, and
- b. imagewise changing opacity of said thermally imageable photomask layer to ultraviolet radiation by exposing the thermally imageable photomask layer to radiation from a laser.

Claim 14 (currently amended): The method of claim 13 wherein the ~~gas~~ oxygen permeability of the thermally imageable layer is altered by the exposure to radiation from a laser.

Claim 15 (previously presented): A method for making a flexographic printing plate, said method comprising

- a. providing a support, the support having coated upon it an ultraviolet photopolymerizable layer and a thermally imageable photomask layer directly on top of said ultraviolet photopolymerizable layer,
- b. providing a specific range of oxygen permeability in the thermally imageable photomask layer, and

c. imagewise changing opacity of said thermally imageable photomask layer to ultraviolet radiation using infrared radiation from a laser.

Claim 16 (currently amended): The method of claim 15 wherein the exposure to infrared radiation from a laser changes the said range of oxygen permeability of said thermally imageable photomask layer. ~~and thereby imagewise changing the opacity of said thermally imageable layer to ultraviolet radiation.~~

Claim 17 (previously presented): The method of claim 13 wherein the thermally imageable photomask layer comprises more than one layer.

Claim 18 (previously presented): The method of claim 15 wherein wherein the thermally imageable photomask layer comprises more than one layer.

Claim 19 (previously presented): The method of claim 16 wherein wherein the thermally imageable photomask layer comprises more than one layer.

Claim 20 (previously presented): A method for making a flexographic printing plate, said method comprising

- a) providing a support, the support having coated upon it an ultraviolet photopolymerizable layer and an imageable photomask layer directly on top of said ultraviolet photopolymerizable layer,
- b) providing a specific range of oxygen permeability in the thermally imageable photomask layer that is sufficient to allow oxygen to diminish the photopolymerization rate of the ultraviolet photopolymerizable layer;
- c) imagewise changing opacity of said thermally imageable photomask layer to ultraviolet radiation using imagewise exposure to radiation;
- d) exposing the photomask layer to UV radiation to expose the ultraviolet photopolymerizable layer;

- e) removing the photomask layer; and
- f) developing the exposed ultraviolet radiation polymerizable layer to provide an image.

Claim 21 (currently amended): The method of claim 20 wherein highlight dots of less than 10% ~~or~~ are produced with the top quarter of the dot being cylindrical in shape, with less than 15% variation in thickness in that top quarter.

Claim 22 (previously presented): A backside exposable photosensitive printing element for preparing flexographic printing plates comprising at least three layers in the orders of:

- a) a transparent support,
- b) an ultraviolet photopolymerizable layer coated upon said dimensionally stable base and
- c) a thermally imageable layer coated upon said ultraviolet polymerizable layer, said thermally imageable photomask layer having a gas permeability that can be changed by an imaging process.

Claim 23 (previously presented): The method of claim 13, wherein the photomask layer comprises two layers, one layer altering opacity upon exposure and the other layer altering free radical or oxygen permeability upon the same exposure.

Claim 24 (currently amended): A photosensitive printing element for preparing flexographic printing plates comprising at least the following layers in the order of:

- (a) a support,
- (b) a photopolymerizable layer comprising an elastomeric composition sensitive to non-infrared actinic radiation, said layer being soluble, swellable or dispersible in a liquid developer prior to exposure to said non-infrared actinic radiation, and
- (c) at least one layer comprising ~~an~~ a radiation sensitive material that is opaque to UV radiation before imagewise exposure and becomes transmissive of UV radiation

after imagewise exposure sufficient to allow polymerization of ~~the~~ said layer (b) during the ~~U.V.~~ UV exposure, and ~~the at least one~~ said layer (c) has sufficient permeability to free radicals or oxygen to enable a reduction of the rate of polymerization of said layer (b) when exposed to standard ambient conditions.

Claim 25 (currently amended): A photosensitive printing element for preparing flexographic printing plates comprising at least the following layers in the order of:

- (a) a support,
- (b) a photopolymerizable layer comprising an elastomeric composition sensitive to non-infrared actinic radiation, said layer being soluble, swellable or dispersible in a liquid developer prior to exposure to said non-infrared actinic radiation, and
- (c) at least one layer comprising ~~an~~ a radiation sensitive material that is transmissive to UV radiation before imagewise exposure and becomes sufficiently opaque to UV radiation after imagewise exposure ~~sufficient~~ to prevent polymerization of ~~the~~ said layer (b) during the ~~U.V.~~ UV exposure, and ~~the at least one~~ said layer (c) has sufficient permeability to free radicals or oxygen to enable a reduction of the rate of polymerization of said layer (b) when exposed to standard ambient conditions.

Claim 26 (currently amended): The photosensitive printing element of claim 25 wherein ~~the at least one~~ said layer (c) comprises at least two layers wherein only one of said at least two layers ~~layer~~ becomes opaque and ~~the~~ all said at least two layers each have sufficient permeability to free radicals or oxygen to enable a reduction of the rate of polymerization of said layer (b) when exposed to standard ambient conditions.

Claim 27 (currently amended): A photosensitive printing element for preparing flexographic printing plates comprising at least the following layers in the order of:

- (a) a support,

(b) a photopolymerizable layer comprising an elastomeric composition sensitive to non-infrared actinic radiation, said layer being soluble, swellable or dispersible in a liquid developer prior to exposure to said non-infrared actinic radiation, and

(c) at least one layer comprising a radiation sensitive material that is transmissive to UV radiation before imagewise exposure and becomes opaque to UV radiation after imagewise exposure to actinic radiation, the opaque property being sufficient to prevent polymerization of ~~the~~ said layer (b) during the ~~U.V.~~ UV exposure underneath opaque areas, and ~~the at least one~~ said layer (c) has sufficient permeability to free radicals or oxygen to enable a reduction of the rate of polymerization of said layer (b) when exposed to standard ambient conditions.

Claim 28 (currently amended): A photosensitive printing element for making a flexographic printing plate, said ~~method~~ photosensitive printing element comprising:

a) a support having coated upon it an ultraviolet photopolymerizable layer and an imageable photomask layer directly on top of said ultraviolet photopolymerizable layer,

b) the thermally imageable photomask having a range of oxygen permeability in the thermally imageable photomask layer that is sufficient to allow oxygen to diminish the photopolymerization rate of the ultraviolet photopolymerizable layer upon ~~standing~~ standing at room temperature and standard pressure in air.

Claim 29 (currently amended): A method for making a flexographic printing plate, said method comprising

a) providing a support, the support having coated thereon an ultraviolet photopolymerizable layer and a thermally imageable photomask layer on top of said ultraviolet photopolymerizable layer, the ultraviolet photopolymerizable layer having a photopolymerization rate that is reduced upon exposure to oxygen and a thermally imageable photomask layer having an oxygen permeability, ~~and~~ :

- b) allowing oxygen to permeate through the imageable photomask layer to reduce the photopolymerization rate of the photopolymerizable layer, ~~and~~ ;
- c) imagewise changing the ~~developability~~ opacity of the thermally imageable photomask layer by exposing the thermally imageable photomask layer to radiation from a laser;
- d) exposing said photomask layer to ultraviolet radiation to expose said ultraviolet photopolymerizable layer;
- e) removing said photomask layer; and
- f) developing the exposed ultraviolet polymerizable layer to provide an image.

Claim 30 (new): The photosensitive element of claim 1 wherein said layer (c) changes permeability to oxygen upon exposure to infrared radiation.